

XXVI. DESCRIPTIONS OF NEW SPECIES  
OF *BOTIA* AND *NEMACHILUS*.

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*Botia birdi*, sp. nov.

Br. iii, D I.10, P 14, V 8, A I.6, C 19.

Height of body 4, length of head 4 and length of caudal 9 in the total length. The distance of cloacal opening from root of caudal is contained three times in the total length.

*Head* rather compressed and deep, height of head being  $1\frac{2}{5}$  and its breadth  $2\frac{2}{5}$  in the length of head. The suborbital groove is shaped like a relaxed bow and is deep and wide for the lodgment of the erectile bifid spine when not in use. The length of the groove is contained three times in the length of head. The erectile spine reaches the anterior third below the orbit.

*Eyes* lateral, with a rounded ridge between and situated about the middle of the length of the head; rather small and contained 8 diameters in the length of head, 4 to  $4\frac{1}{2}$  diameters from the end of snout and  $2\frac{1}{2}$  diameters apart.

*Barbels*.—8 in all, 4 rostral in a bunch at the end of a fleshy prolongation of the pointed snout, the inner pair being superimposed by the outer pair. The mandibular pair, which are short and thick and only half as long as the maxillary (which are the longest with slender tapering ends) grow from a fleshy outgrowth of the lower lip. The maxillary pair reach the middle of the eye below, the length of the rostral barbels is intermediate between that of the maxillary and that of the mandibular; the outer and upper rostral pair being longer than the inner and inferior rostral pair.

*Anterior nares* are about the middle of the snout, have double funnel-shaped tufts and two deep pits, and do not open into the mouth, but the double series of muciferous glands in the head appear to terminate in front of them.

*Lips*.—Suctorial, thick, rounded and doubled up at the corners when the mouth remains closed, thus giving a crescentic appearance to the lumen. The upper lip is extended into an overhanging fleshy flap and the lower lip is corrugated or divided into four rounded fleshy protuberances, giving a characteristic appearance to the mouth.

*Fins*.—There are appendants on the outer side of pectoral and ventral fins. These appendants are small, thin, cuticular flat

outgrowths in the angles of the fins. The anterior root of the dorsal fin is slightly nearer to the snout than the middle point in the total length and is in advance of the anterior root of the ventral fin, which is slightly behind the middle point. The outer free margin of the dorsal is concave outward; the pectoral fin in length is contained  $1\frac{1}{5}$  times in the interval between the anterior roots of the pectoral and ventral fins; the ventral fin is contained  $1\frac{1}{8}$  to  $1\frac{2}{5}$  times in the interval between the anterior roots of the ventral and anal fins, and the anal fin about  $1\frac{2}{5}$  times in the interval between the anterior roots of the anal and caudal fins. (In each of these the length of the fin is measured as it lies contracted alongside the body length.) In the dorsal fin the spine is intimately joined with the first ray, so much so that the total number appears to be 10. The first ray though articulated is not branched, while the rest of the rays are both articulated and branched. The spine of the anal fin is also intimately joined with the first ray; thus the total number in the fins appears to be 6 and not 7 till the spine is separated out. Like that of the dorsal the first anal ray is articulated but not branched, but the rest are both articulated and branched. The caudal fin is deeply forked—more than  $\frac{2}{3}$  of its total length.

*Shape.*—Body broader above than below. The dorsal profile is round and sloping in front of the dorsal fin, the slope increasing gradually further forward; behind the dorsal fin it is only slightly sloping. The ventral profile is almost a straight line and the abdomen is transversely rounded.

*Lateral line* is complete. It is almost straight from the root of the caudal fin to below the dorsal fin, from which point it slightly follows the curvature of the upper profile; it appears to terminate in the upper corner of the gill-opening. From this point again widely separated larger spots (openings of muciferous glands) are observed in two series, one curving up the eye and the other rounding below, meeting in front of the nasal openings.

*Air-bladder* is an elongated narrow tube lying on the upper part of the gut, and in length is only  $\frac{1}{3}$  the length of the gut.

*Scales* very small and deciduous; all over the body except on the head.

*Colour.*—The snout was reddish at the time of capture but has lost its colour in spirit. The outer rostral barbels are dark brown, the rest are white. Dorsal and caudal fins are striped with broad black or dark brown bands on yellowish white ground; the dorsal with 2 to 3 cross-bands and the caudal with 3 to 4 wavy bands. The other fins, *viz.*, pectoral ventral and anal, are not at all striped but are of one uniform colour which is paler yellowish white; as is also the ventral (lower) surface of the body; the dorsal side is deeper and darker, and further variegated by irregular elliptical loops of brownish black; these loops send down broad brownish black bands on each side, but all these bands stop short of the ventral surface and sometimes interlace with each other. Just below the suborbital groove there is a half-moon-shaped area

conspicuously silvery which probably functions as a warning organ.

*Size.*—Three young specimens from Ambala measure 12.4 cm., 12.9 cm. and 13.3 cm. Full-sized ones weigh up to 1½ lb. each.

These fish were caught in the month of May, 1908, by W. J. A. Bird, Esq., Superintending Engineer, Sirhind Circle (Ambala), at Rupar, where the Sirhind Canal diverges from the Sutlej. The fish are said to be very good eating, and, as an individual reaches 1½ lb. in weight, are of considerable economic value.

This fish has some superficial resemblance to a small fish, *viz.*, *Botia geto* of Day (*Cobitis geto* of Hamilton Buchanan, *Schistura geta* of McClelland and *Geto rostrata* of Günther), which, besides being a smaller fish, differs in its most important proportions, shape and formation of head (figured by Dr. Günther in the *British Museum Cat. of Fishes*, vol. vii, p. 367). There is considerable difference in the coloration also; *Botia rostrata*, Günther, has its pectoral, ventral and anal fins conspicuously striped with brownish cross-bands; in the new species none of these fins are at all banded or striped.

*Nemachilus macmahoni*, sp. nov.

Br. iii, D I.8, P 10, V 8, A I.6, C 19.

Height of body  $5\frac{1}{5}$ , length of head  $4\frac{1}{5}$ , length of caudal 8, the distance of cloacal opening from the root of caudal  $3\frac{1}{2}$  in the total length.

*Head* rather broad and thick, height of head being  $2\frac{1}{5}$  and its breadth  $1\frac{1}{2}$  in the length of head and the height of head being  $1\frac{2}{5}$  in the breadth of head.

*Eyes* small, being  $9\frac{1}{2}$  diameters in the length of head, 4 diameters in the length of snout and about  $3\frac{1}{5}$  diameters apart; intra-orbital space very slightly convex.

*Barbels.*—6 in all, with thick bases and slender tips; maxillary pair reaching below hind edge of the orbit. The maxillary barbels appear to come out of the corners of a groove that surrounds the mouth.

*Fins.*—The single spine of the dorsal as well as of the anal is intimately joined with the first ray that follows, which, though articulated, is not branched. There is a peculiar thickening behind the dorsal fin which in appearance resembles the elongated adipose dorsal fin of some of the *Macrones*. This fin-like structure is continuous behind with the skin fold of the caudal; its length is  $3\frac{1}{2}$  in the total length, and its height is contained 10 times and its thickness 12 times in the length of the fin. The anterior root of the spinous dorsal fin is in front of the middle point of the total length and also of the anterior root of the ventral fin which is behind the middle point of the total length. The length of the pectoral is  $2\frac{2}{5}$  in the distance between the bases of the pectoral and ventral fins. The length of the ventral is exactly half the distance between the bases of the ventral and anal fins, and the length of the anal fin is

contained almost twice in the interval between the bases of the anal and caudal fins. Free end of dorsal fin is a straight line and the caudal is rounded.

*Shape* elongated and round; thicker in front and tapering from behind the dorsal fin. Dorsal profile curves up from the posterior root of the dorsal fin, reaching the highest point midway between the anterior root of the dorsal and the nape of the neck. Head not sloping but rather flat. The ventral profile is slightly curved downwards, the lowest point being the anterior root of the ventral fin.

*Lateral line* complete and slightly curved from below the anterior root of the adipose fin-like structure to the upper corner of the gill-cleft, and follows the curvature of the dorsal profile closely.

*Scales* very small and highly deciduous, found all over the body.

*Colour*.—Brown all over, head and dorsal part slightly darker than ventral surface. Barbels lighter brown. Dorsal and caudal fins banded with darker bands, pectoral also slightly banded; but anal and caudal of a uniform light brown colour.

The type, which is 28 cm. in length, is in the collection of the Indian Museum (No. F  $\frac{1222}{1}$ ) and was collected in the affluents of the Helmand by Colonel Sir A. H. McMahon, K.C.I.E., C.S.I., and the officers of the Seistan Arbitration Commission. The species differs in many important characters from Tate Regan's *N. rhadinæus* from the same locality. One of the types of the latter species is also in the collection.

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